JOB SAFETY ANALYSIS (JSA)

4.1 INTRODUCTION

A job is a sequence of separate steps or activities that, when put together, accomplish a work goal. Identifying hazards and stressing safe procedures are part of job safety analysis and should be one of the first steps taken where there is a possibility of injury to the worker. (See sample JSA in this section.)

Here are the steps to follow when analyzing a job.

4.2 SELECT THE JOB

Jobs suitable for a job safety analysis (JSA) are those assignments that a line supervisor may make. Operating a machine, tapping a furnace, or piling warehouse goods are all subjects for JSA. They are neither too broad nor too narrow.

Jobs should not be selected at random, those with the worst accident experience should be analyzed first if JSA is to yield the quickest possible return.

A. Break The Job Down

Before the search for hazards begins, a job should be broken down into a sequence of steps, each describing what is being done. Avoid the two common errors: (a) making the breakdown so detailed that an unnecessarily large number of steps results, or (b) making the job breakdown so general, that basic steps are not recorded.

The technique of making a job safety analysis involves these steps:

1. Selecting the right person to observe.
2. Briefing him on the purpose.
3. Observing him perform the job, and trying to break it into basic steps.
4. Recording each step in the breakdown.
5. Checking the breakdown with the employee who was observed.

Select the employee who is experienced, capable, cooperative, and willing to share ideas. This person will be easy to work with.

If the employee has never helped on a job safety analysis, explain the purpose;

to make a job safe by identifying hazards and eliminating or controlling them and show the employee a completed JSA. Reassure the employee that it is the job, and not the person that is being studied, and that the selection was based on experience and capability alone.

To determine the basic job steps, ask "What step starts the job?" Then, "What is the next basic step?" and so on.

To record the breakdown, number the job steps consecutively as illustrated in the first column of the JSA training guide, illustrated. Each step tells what is done, not how.

The wording for each step should begin with an "action" word, like "remove", "open", or "weld". The action is completed by naming the item to which the action applies.

In checking the breakdown with the worker who was observed, the supervisor should obtain his agreement about what is done and the order of the steps. The supervisor should thank the person for his cooperation.

4.3 IDENTIFY HAZARDS AND POTENTIAL ACCIDENTS

A. begin the search for hazards

Before filling in the next two columns of the JSA-Potential Accidents or Hazards and Recommended Safe Job Procedure. The purpose is to identify all hazards both those produced by the environment and those connected with the job procedure. Each step, and thus the entire job, must be made safer and more efficient. To do this, consider these questions about each step:

1. Is there a danger of striking against, being struck by, or otherwise making injurious contact with an object?

2. Can the person be caught in, on, or between objects?

3. Can he slip or trip? Can he fall on the same level or to another?

4. Can he strain himself by pushing, pulling, or lifting?

5. Is the environment hazardous (toxic gas, vapor, mist, fume, or dust, slippery floor, heat, or radiation)?

B. Close observation and job knowledge are required.

1. Employees should repeat the job observation as often as necessary until all hazards and potential accidents have been identified.

2. Include hazards that might result. Record the type of accident and the agent involved. To note that an employee might injure a foot by dropping a fire extinguisher, for example, write down "struck by extinguisher".

3. Again check with the observed employee after the hazards and potential accidents have been recorded. The experienced employee will probably suggest additional ideas. You should also check with others who are experienced with the job. Through observation and discussion, you will develop a reliable list of hazards and potential accidents.

4.4 DEVELOP SOLUTIONS

Develop a recommended safe job procedure to prevent occurrence of potential accidents. The principal solutions are:

A. Find a new way to do the job.

To find an entirely new way to do a job, determine the work goal of the job, and then analyze the various ways of reaching this goal to see which way is safest. Consider work-saving tools and equipment.

B. Change the physical conditions that create the hazards.

1. If a new way cannot be found, then ask this question about each hazard and potential accident listed: "What change in physical condition (such as change in tools, materials, equipment, or location) will eliminate the hazard or prevent the accident?"

2. When a change is found, study it carefully to find what other benefits (such as greater production or time saving) will accrue. These benefits should be pointed out when proposing the change to higher management. They make good selling points.

C. To eliminate hazards still present, change the job procedure.

1. The third step in solving the job-hazard problem is to investigate changes in the job procedure. Ask of each hazard and potential accident listed: "What should the worker do, or not do, to eliminate this particular hazard or prevent this potential accident?" Where appropriate, ask an additional question, "How should he do it?" In most cases, these questions can be answered from your own experience.

2. Answers must be specific and concrete if new procedures are to be any good. General precautions "be alert", "use caution", or "be careful" are useless. Answers should precisely state what to do and how to do it. This recommendation "Make certain the wrench does not slip or cause loss of balance" is only "half good". It does not tell how to prevent the wrench from slipping.

3. In contrast, is an example of a good recommended safe procedure that tells both "what" and "how": "Set wrench securely. Test its grip by exerting a slight pressure on it. Brace yourself against something immovable, or take a solid stance with feet wide apart, before exerting full pressure. This prevents loss of balance if the wrench slips."

4. Often a repair or service job has to be repeated frequently because a condition needs correction again and again. To reduce the necessity of such a repetitive job, ask "What can be done to eliminate the cause of the condition that makes excessive repairs or service necessary?" If the cause cannot be eliminated, then ask "Can anything be done to minimize the effects of the condition?"

5. Machine parts, for example, may wear out quickly and require frequent replacement. Study of the problem may reveal excessive vibration. After reducing or eliminating the vibration, the machine parts last longer and require less maintenance.

D. Try to reduce the necessity of doing a job.

Try to reduce the necessity of doing a job or at least the frequency that it must be performed. This is particularly helpful in maintenance.

1. This fourth step, reducing frequency of a job, contributes to safety only in that it limits the exposure. Every effort still should be made to eliminate hazards and to prevent potential accidents through changing physical conditions or revising job procedures or both.

2. Finally, check or test the proposed changes by re-observing the job and discussing the changes with the men who do the job. Their ideas about the hazards and proposed solutions may be of considerable value. They can judge the practicality of proposed changes and perhaps suggest improvements. Actually these discussions are more than just a way to check a JSA. They are safety contacts that promote awareness of job hazards and safe procedures.

4.5 BENEFITS OF A JOB SAFETY ANALYSIS (JSA)

A. Give individual training in safe, efficient procedures

B. Make employee safety contacts

C. Instruct the new personnel (Use JSA for initial training)

D. Prepare for planned safety observations

E. Review job procedures after accidents occur

F. Study jobs for possible improvement in job methods

G. Identify hazards and necessary personal protection equipment

H. Provide information necessary to develop job safety briefing guide

4.6 DAILY BRIEFING GUIDE AND OPERATOR'S CHECKLIST

A. Job Safety Daily Briefing

For each JSA an accompanying Job Safety Daily Briefing Guide should be developed. This briefing guide will be used by the supervisor to brief hazards, proper procedures and required protective equipment to employees prior to starting a job. (See sample in this section.)

B. Operators Checklist

An Operator's Checklist can be written to ensure proper procedures are followed. This will protect personnel and equipment. This checklist can be placed right on the equipment for daily use and an abbreviated checklist can be made wallet size for each operator. (See samples in this section.)

4.7 SAFETY PROGRAM

Copies of each completed JSA along with the Job Safety Daily Briefing Guide should be sent to the Safety/Loss Control office for review and comment. Each JSA on a critical task should be reviewed annually to verify currency